What we claim is:

1. A method for uplink burst equalization in broad wide access system, in which equalizer uses a decision feedback equalizer, comprising the following steps of:

Step 1, pre-training process: before transmitting user data, sending training sequence, and training the equalizer;

Step 2, channel tracking process: recording coefficient after convergence of the equalizer, starting transmitting the user data, and the equalizer tracking wireless channel;

Step 3, if channel changes result in an error rate exceeding a threshold 1but not exceeding a threshold 2, entering into a burst equalization process; and

Step 4, entering into the pre-training process again if the channel changes result in an error rate exceeding threshold 2.

2. The method for uplink burst equalization in broad wide access system of claim 1, with characterized in that said pre-training process uses long known sequence as reference sequence to perform training.

3. The method for uplink burst equalization in broad wide access system of claim 1, wherein said burst equalization process further comprises the following steps of:

first using pre-amble of a burst data package as the reference sequence, performing channel estimation in a zero correlation domain, then calculating initial coefficient value of equalizer according to channel estimation, and pre-loading the calculated initial coefficient value into the equalizer, and using the pre-amble and part of the user data as the reference sequence to train the equalizer, making the equalizer convergent sufficiently; after the training, the equalizer using the decided user data as the reference sequence to equalize the user data, and outputting decision information.

4. The method for uplink burst equalization in broad wide access system of claim 3, wherein, said pre-amble employs Newman-Holfman sequence of 16 bits, and employs a BPSK modulation form; said channel estimation process further includes the steps of: firstly, generating local reference signal of the pre-amble locally, which is bilateral cycle

spreading signal of the pre-amble; secondly, sampling the received signal which the pre-amble corresponds to, then performing correlation operation between the sampled signal corresponding to the pre-amble and the local reference signal, therefore finishing the channel estimation.

5. The method for uplink burst equalization in broad wide access system of claim 3, wherein the pre-amble employs M sequence, said channel estimation includes steps of: firstly, local reference signal for generating the pre-amble being bilateral cycle spreading signal of M sequence, and the local reference signal of the pre-amble being a sequence composed of 1 and 0; secondly, sampling received signal which the pre-amble corresponds to, then performing correlation operation between the sampled signal corresponding to the pre-amble and the local reference signal, therefore finishing the channel estimation.

6. The method for uplink burst equalization in broad wide access system of claim 3, wherein, said calculating the initial value of equalizer coefficient further includes the steps of:

calculating tap coefficient initial value of a forward filter:

$c(0) = h^*(0)/|h(0)|^2 = 1/h(0)$, other coefficients are 0;

calculating tap initial coefficient value of a backward filter:

$[b(1)\, b(2) \cdots b(B)] = h^*(0)/|h(0)|^2 \times [h(1)\, h(2) \cdots h(B)] = 1/h(0) \times [h(1)\, h(2) \cdots h(B)]$;

in which, $\mathbf{h}$ represents channel impulse response vector, $\mathbf{c}$ represents coefficient vector of the forward filter of the decision feedback equalizer, **b** represents coefficient vector of the backward filter, B is the length of the coefficient vector of the backward filter, in which, a pulse with the biggest amplitude is h(0), a previous impulse response pulse is [h(-n) h(-n+1) … h(-1)], a subsequent impulse response pulse is [h(1) h(2) … h(n)]; the coefficient of the forward filter and the coefficient corresponding to the subsequent impulse response pulse in the equalizer is [c(-n) c(-n+1) … c(-1)], the coefficient corresponding to the previous impulse response pulse is [c(1) c(2) … c(n)].

7. The method for uplink burst equalization in broad wide access system of claim 3, wherein said training equalizer further includes the steps of:

firstly, using the pre-amble as the reference sequence to perform warm-up training for at least two times to the equalizer, after the warm-up training, most of the decision outputs being right; secondly, inputting part of the user data into the equalizer as the reference sequence for further training, till the equalizer being convergent completely.

8. The method for uplink burst equalization in broad wide access system of claim 1, wherein said threshold 1 is a critical point when the changing speed of the channel exceeding the tracking speed of the equalizer; threshold 2 is a threshold bit error rate corresponding to a receiver.

9. The method for uplink burst equalization in broad wide access system of claim 8, wherein the value of the threshold 1 is the sum of the average of error rate of five continuous burst data packages and twice the biggest absolute value of error rate variable; a typical value of the threshold 2 is 10^{-3}.